

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 21603.0002	FOR FURTHER ACTION <small>see Form PCT/ISA/220 as well as, where applicable, item 5 below.</small>	
International application No. PCT/US2005/001630	International filing date (day/month/year) 21/01/2005	(Earliest) Priority Date (day/month/year) 21/01/2004
Applicant CHIRON CORPORATION		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 06 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. ☒ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☒ **Certain claims were found unsearchable** (See Box II).

3. ☐ **Unity of invention is lacking** (see Box III).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings**,

a. the figure of the **drawings** to be published with the abstract is Figure No. _____

☐ as suggested by the applicant.

☐ as selected by this Authority, because the applicant failed to suggest a figure.

☐ as selected by this Authority, because this figure better characterizes the invention.

b. ☒ none of the figures is to be published with the abstract.

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Box No. I Nucleotide and/or amino acid sequence(s) (Continuation of item 1.b of the first sheet)

1. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, the international search was carried out on the basis of:

a. type of material

☒

a sequence listing

☐

table(s) related to the sequence listing

b. format of material

☒

in written format

☒

in computer readable form

c. time of filing/furnishing

☒

contained in the international application as filed

☐

filed together with the international application in computer readable form

☒

furnished subsequently to this Authority for the purpose of search

2. ☒ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

3. Additional comments:

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International Application No
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A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 A61K38/19 A61P35/04 G01N33/50

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A61K A61P

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, EMBASE, BIOSIS, CHEM ABS Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P, X	WO 2004/045532 A (CHIRON CORPORATION) 3 June 2004 (2004-06-03) the whole document	1-64
X	----- DATABASE WPI Section Ch, Week 200171 Derwent Publications Ltd., London, GB; Class B04, AN 2001-613857 XP002347324 & JP 2001 233784 A (MORINAGA MILK IND CO LTD) 28 August 2001 (2001-08-28) abstract ----- -/--	1-64

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- "&" document member of the same patent family

Date of the actual completion of the international search

29 September 2005

Date of mailing of the international search report

17/10/2005

Name and mailing address of the ISA

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 98/39449 A (CHIRON CORPORATION; DWARKI, VAVARANI; MANNING, WILLIAM, C; KOTHS, KIRS) 11 September 1998 (1998-09-11)	1-64
X	page 36, line 22 - page 37, line 28; claim 1; example 5 page 47, line 17 - page 48, line 5	26,27, 43,49
Y	EP 0 955 056 A (CHIRON CORPORATION) 10 November 1999 (1999-11-10)	1-64
X	paragraphs '0028!, '0094! - paragraph '0114!	26,27, 43,49
Y	WO 90/01942 A (GENETICS INSTITUTE, INC) 8 March 1990 (1990-03-08) page 1, line 27 - page 2, line 9; examples 2-4	1-64
Y	EP 0 955 365 A (CHIRON CORPORATION; REGENTS OF THE UNIVERSITY OF CALIFORNIA; REGENTS O) 10 November 1999 (1999-11-10) cited in the application examples 9-12	1-64
Y	MIYAMOTO TAKESHI ET AL: "Differentiation and function of osteoclasts." THE KEIO JOURNAL OF MEDICINE. MAR 2003, vol. 52, no. 1, March 2003 (2003-03), pages 1-7, XP002347322 ISSN: 0022-9717 abstract; figure 5	1-64

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Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

Although claims 1-7, 12-25, 28 and 29 are directed to a method of treatment of the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

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Information on patent family members

International Application No

PCT/US2005/001630

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 2004045532	A	03-06-2004	AU 2003291002 A1 CA 2505994 A1 EP 1572106 A2	15-06-2004 03-06-2004 14-09-2005
JP 2001233784	A	28-08-2001	NONE	
WO 9839449	A	11-09-1998	AU 6458898 A EP 0973904 A1 JP 2001517079 T	22-09-1998 26-01-2000 02-10-2001
EP 0955056	A	10-11-1999	NONE	
WO 9001942	A	08-03-1990	AU 4219689 A	23-03-1990
EP 0955365	A	10-11-1999	NONE	